



Title	A new genus and four new species of Aphidinae from Japan (Aphidinae, Homoptera)
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Citation	INSECTA MATSUMURANA, 24(2): 104-111
Issue Date	1961-11
Doc URL	http://hdl.handle.net/2115/9675
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Type	bulletin
Additional Information	



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A NEW GENUS AND FOUR NEW SPECIES OF APHIDINAE FROM JAPAN (APHIDIDAE, HOMOPTERA)

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Unisitobion, new genus

Apterous viviparous female: Related to *Macrosiphum* Passerini, especially to the subgenus *Sitobion* Mordvilko, but differs from that genus in the presence of spinules on the head and on the first segment of tarsus, and in the tibiae a little striated on the distal part.

Genotype: *Macrosiphum sorbi* Matsumura.

This genus may be readily distinguished from *Aulacorthum* Mordvilko by the cornicles distinctly reticulated on the apical part and by the presence of spinules on the first tarsal segment.

Unisitobion sorbi (Matsumura)

Macrosiphum sorbi Matsumura, Trans. Sapporo Nat. Hist. Soc., VII, p. 4 (1918).

Apterous viviparous female: In cleared specimens, body sclerotized and dark brown over dorsum except on 8th abdominal segment, with 7 pairs of pleural intersegmental pale parts on dorsum of thorax and abdomen, these pale parts sometimes enlarged and fused, forming a pair of longitudinal pale areas on abdomen; head darker on anterior part, 1st and 2nd antennal segments blackish brown; 3rd pale, blackish on apex; 4th and 5th pale, blackish at base and apex; 6th dark at base and on processus terminalis; cornicles black, cauda pale; legs blackish at apical parts of femora, and on bases and apical parts of tibiae. Body nearly twice as long as wide in specimens mounted in balsam; metanotum and anterior 7 abdominal segments fused together, with some wrinkles on dorsum. Head not produced at median part of front, with some spinules in a cluster on dorsum anteromesad of each eye, and with many spinules on venter except on median part and sometimes also on posterior half of antennal tubercle; chaetotaxy of head usual, dorsal setae nearly half as long as middle diameter of 3rd antennal segment; venter without additional setae. Antennal tubercles well developed, with a ventral seta; frontal tubercles diverging, with 2 setae. Antennae 1.75 times as long as body, 1st segment distinctly longer than wide, imbricated, with 7-10 setae; 2nd imbricated, with 4 setae; 3rd smooth, with 2 or 3 sensoria near base, and over 20 short setae which are blunt and longest one is slightly shorter than half middle diameter of the segment; 4th imbricated, without sensoria; primary sensorium of 5th removed from tip of the segment by its diameter; relative length of segments: III-24, IV-21, V-19, VI-6+29.

Clypeus smooth, with 2 pairs of anterior setae, mandibular laminae with 2 setae; rostrum reaching middle coxae, ultimate segment as long as penultimate, and as 2nd segment of hind tarsus, a little shorter than half basal part of 6th antennal segment, with 2 pairs of secondary setae. Cornicles long, cylindrical, as long as 4th antennal segment, distinctly longer than width of head across eyes, nearly one-third of body length, about 12 times as long as wide at middle, over thrice as long as cauda, broadened basally, narrowed on apical part, with a distinct flange, rather sparsely imbricated, with distinct reticulations on apical one-sixth to one-ninth; flange distinctly wider than middle part of hind tibia. Cauda rather short, shorter than basal part of 6th antennal segment, conical, rounded at apex, with 5-7 setae. Genital plate with 8 or 9 setae along hind margin and 2-4 anterior setae. Femora long, imbricated on distal part, with setae shorter than one-third diameter of middle part of femur; tibiae imbricated on apical part, without spinules, with setae as long as, or a little longer than, middle diameter of hind tibia; tarsi distinctly imbricated, 1st segment with spinules, and 3 setae in fore and middle pairs, but with 2 or 3 setae in hind pair; 2nd segment with a few spinules and 6 secondary setae. Anterior abdominal segments with about 10 very short dorsal setae including marginal ones, which are about one-fourth as long as middle diameter of 3rd antennal segment; 6th tergite with 6 a little longer setae between cornicles, 7th with 4; 8th pale, with 8 blunt setae which are as long as, or a little shorter than, middle diameter of 3rd antennal segment. Basal 2 abdominal spiracles closely placed, distance between 6th and 7th spiracles somewhat longer than that between 5th and 6th. Mesosternal furca with a basal stem a little longer than wide. Body 2.3 mm.

Host plant: *Sorばna sorbifolia*.

Specimens examined: Some apterae collected at Sapporo (1. VIII. 1960, R. Takahashi).

Cryptaphis geranii, n. sp.

Apterous viviparous female: Yellowish brown in life. In cleared specimens, body pale brownish, sclerotized over dorsum except around bases of cornicles, antennae pale brown, darker on basal 2 segments; cornicles pale brownish, cauda pale; legs pale brownish on distal halves of femora, apices of tibiae and on tarsi. Body oval. Head protuberant at median part of front, with spinules on venter and on anterior part of frontal tubercle on dorsum; dorsal setae long, stout, blunt or slightly dilated at tip, as usual in number, about, or slightly less than, thrice as long as middle diameter of 3rd antennal segment, apical dilated parts of these setae much longer than wide, rounded;

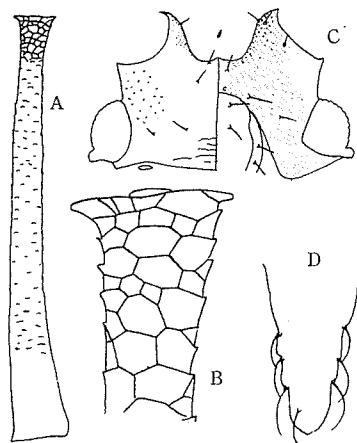


Fig. 1. *Unisitobion sorbi* (Matsumura).
Aptera.
(A) Cornicle. (B) Apex of cornicle.
(C) Head. (D) Cauda.

venter with 3 or 4 similar blunt setae on each side besides a pair on front. Antennal tubercles with or without a ventral seta, frontal tubercles diverging, not angulated, with 2 long setae. Antennae a little shorter than body, 1st segment not longer than wide, imbricated, with about 8 setae; 2nd imbricated, with 4 setae; 3rd smooth, imbricated at base only, slightly longer than width of head across eyes, with 11 small sensoria in a row along whole length, and with about 15 setae which are a little capitate and at most about 1.6 times as long as middle diameter of the segment; 4th imbricated, with 4 setae and 3 sensoria; primary sensorium of 5th wanting cilia, much apart from apex of the segment; processus terminalis blunt at tip, with 2 short setae besides apical ones; relative length of segments: III-36, IV-17, V-13, VI-7+31. Clypeus with 3 anterior setae, mandibular laminae with 3 or 4 setae; rostrum reaching middle coxae, ultimate segment as long as penultimate, a little shorter than basal part of 6th antennal segment, about 1.3 times as long as 2nd segment of hind tarsus, with one or 2 pairs of secondary setae on lower side and a pair on upper side. Cornicles much shorter than width of

head across eyes, about one-sixth of body length, about 6 times as long as wide at middle, about 2.7 times as long as cauda, sparsely imbricated with spinules, with some large indistinct cells in 3 rows at apex, at apex excluding large flange as wide as middle part of hind tibia; apical flange a little wider than middle part of cornicle. Cauda stout, longer than wide, with 3 setae. Genital plate large, with 10 long stout setae along hind margin on each side, and 2 pairs of anterior setae. Pronotum with 10 setae. Legs long, femora with a few spinules on distal half, and many setae, longest one of which is slightly longer than half middle diameter of femur; tibiae smooth, with blunt setae which are equal in length to, or at most 1.6 times as long as, middle

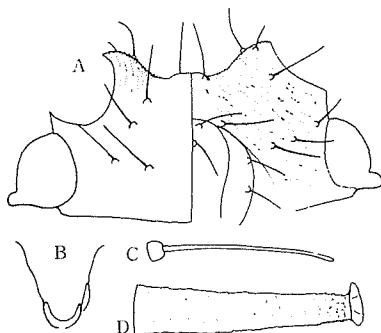


Fig. 2. *Cryptaphis geranii*, n. sp.

Aptera.

- (A) Head.
- (B) Cauda.
- (C) Dorsal seta.
- (D) Cornicle.

diameter of hind tibia; tarsi with 3 setae on 1st segment in all pairs, and a pair of secondary setae on upper and lower sides of 2nd. Abdomen without marginal tubercles, with about, or over, 10 long blunt setae on anterior 5 segments, 5 or 6 setae between cornicles, 6 on 7th; 8th separated, sclerotized, with 4 setae; these dorsal setae subequal in length, about 4 times as long as middle diameter of 3rd antennal segment; dorsal sclerotized area of abdomen extending beyond spiracles on 6th and 7th segments. Distance between 6th and 7th abdominal spiracles a little longer than that between 5th and 6th. Mesosternal furca with a very short basal stem. Body 2.0 mm.

Host plant: *Geranium* sp., on the leaf.

Described from 2 apterae (cotypes) collected at Maruyama, Sapporo (2. VIII. 1960, R. Takahashi).

This species seems to be referable to *Cryptaphis* Hille Ris Lambers rather than to other proposed genera and is different from the known species of the genus in the dorsal

setae less dilated at apex, the cornicles with large indistinct cells at the apex, and the front being distinctly protuberant at the middle. The species differs from the description of *Myzus geranicola* Shinji in the divergent frontal tubercles and in the presence of sensoria on the 3rd and 4th antennal segments.

***Cryptaphis menthae*, n. sp.**

Apterous viviparous female: Body sclerotized and blackish over dorsum except around bases of cornicles; when cleared, head brown, antennae brownish, blackish on basal 2 segments; femora blackish on distal parts, tibiae brown, darker apically; cornicles black, cauda dusky brown. Body oval. Head prominently protuberant at middle of front, with spinules over venter and on anterior half of antennal tubercle on dorsum; chaetotaxy of head normal, dorsal setae long, distinctly dilated at apex, about 2.5–2.7 times as long as middle diameter of 3rd antennal segment, apical dilated parts of these setae much longer than wide, rounded at apex, sometimes asymmetrical; venter of head with 2 or 3 similar setae on each side besides those on antennal tubercle; frontal tubercles diverging, not angulated, with 4 setae. Antennae a little shorter than body, 1st segment as long as wide, with some spinules and 8 or 9 setae variable in length; 2nd with 4 setae, 3rd a little narrowed basally, smooth, slightly shorter than width of head across eyes, with 4 or 5 small sensoria in a row along almost whole length, and with many long setae which are dilated at apex and at most 1.4 times as long as middle diameter of the segment; 4th without sensoria, 5th distinctly imbricated, primary sensorium without cilia, small, much apart from apex of the segment; processus terminalis blunt at tip, with a short seta besides apical ones; relative length of segments: III-30, IV-17, V-13, VI-6.5 + 32. Mandibular laminae with 2 setae, rostrum reaching middle coxae, ultimate segment nearly as long as penultimate, longer than basal part of 6th antennal segment, 1.3 or 1.4 times as long as 2nd segment of hind tarsus, with 3 pairs of secondary setae on lower side and a pair on upper side. Cornicles distinctly shorter than width of head across eyes, about one-sixth of body length, 6 times as long as wide at middle, about 2.5 times as long as cauda, sparsely and indistinctly imbricated with spinules, almost smooth on basal half, at apex excluding flange slightly wider than middle part of hind tibia; apical flange a little wider than middle part of cornicle. Cauda stout, longer than wide, with 6 setae. Genital plate large, with many long setae. Pronotum with 9 setae, mesonotum with about 20 setae. Legs long, femora smooth, with many long capitate setae, larger ones of which are a little longer than half middle diameter of femur; tibiae smooth, with many long capitate setae along outside, longest one of which is 1.5 or 1.6 times as long as middle diameter of hind tibia; tarsi with 3 setae on 1st segment in fore and middle pairs, but 2 on it in hind pair; 2nd segment of hind tarsus with a pair of secondary setae on upper side and 2 or 3 setae on lower side. Abdomen without marginal tubercles, with some minute spinules, and about 20 setae in a row on anterior segments each, over 10 setae on 6th segment, about 10 on 7th; 8th sclerotized, separated, with 5 setae; these dorsal setae of abdomen subequal in length, similar to those of head, but less dilated at apex, about 2.5 times as long as middle diameter of 3rd antennal

segment; dorsal sclerotized area of abdomen extending far beyond spiracles except on basal part. Distance between 6th and 7th abdominal spiracles a little longer than that between 5th and 6th. Mesosternal furca with a very short basal stem. Body 2.1 mm.

Alate viviparous female: Head, antennae, thorax, and cornicles black; cauda pale, legs black on femora excepting bases, and on apices of tibiae; abdomen almost black on dorsum, wings hyaline. Head slightly protruding at median area of front, smooth on dorsum, with spinules on venter; dorsal setae stout, bluntly pointed, as long as, or a little longer than, middle diameter of 3rd antennal segment. Antennae a little longer than body, 3rd segment smooth, with 24 sensoria almost in a row along whole length, and about 13 blunt setae which are subequal in length to middle diameter of the segment; 4th a little imbricated, with 5 or 6 sensoria; primary sensorium with cilia; relative length of segments: III-46, IV-22, V-17, VI-7+42. Clypeus with 4 blunt anterior setae, mandibular laminae with spinules. Cornicles as in aptera. Cauda with 5 setae. Genital plate pale brown, with 8 long blunt setae along margin on each side, and 6 anterior setae. Femora almost smooth, with many setae, longest one of which is subequal to half middle diameter of femur; tibial setae at most about 1.2 times as long as middle diameter of hind tibia. Abdomen with a large black band on each segment, these bands on 3rd-6th segments completely consolidated and fused with marginal sclerites on 6th; marginal sclerites large, with a few spinules and 3-5 setae, without tubercles; those of 5th fused with those of 6th, with 2 setae; dorsal setae about 15 on 1st, 10-12 on 2nd-5th, about 10 including marginal ones on 6th, 8 on 7th; 7th and 8th defined, with 5 setae on latter, which are bluntly pointed and about 1.5-1.7 times

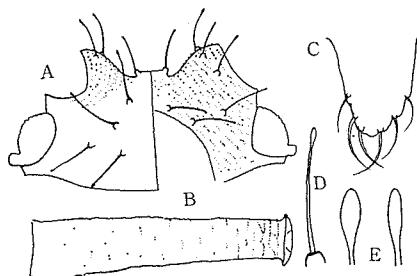


Fig. 3. *Cryptaphis menthae*, n. sp.

Aptera.

- (A) Head. (B) Cornicle.
- (C) Cauda. (D) Dorsal seta.
- (E) Apical parts of dorsal setae.

as long as middle diameter of 3rd antennal segment; a pair of dorsal setae on median area larger on anterior 6 segments, which are about 1.8-2.8 times as long as that diameter; venter of abdomen with dusky transverse lateral patches on 3rd-6th segments, which are larger on posterior segments. Spiracular plates of abdomen fused with dorsal sclerites on 6th and 7th segments; distance between 6th and 7th spiracles distinctly longer than that between 5th and 6th. Wing veins normal. Body 2.3 mm.

Host plant: *Mentha* sp.

Described from an aptera (holotype) and an alata (morphotype) taken near Mt. Iwawaki, Osaka Prefecture (29. V. 1960, M. Sorin.)

This species is distinguished from the foregoing one by the dorsal setae more dilated at apex, the absence of sensoria on the 4th antennal segment in the aptera, the cauda with more setae, and by the smaller flange of cornicle.

Amphorophora rubiphaga, n. sp.

Apterous viviparous female: Green; antennae black, paler at base of 3rd segment, cornicles black, cauda pale, femora black on distal part, tibiae and tarsi black. Body about twice as long as wide when mounted in balsam. Head rough at median part of front between frontal setae, dorsal setae bluntly pointed or flattened at tip, nearly as long as, or a little longer than, middle diameter of 3rd antennal segment; venter with 3 or 4 setae on each side besides a seta on antennal tubercle. Frontal tubercles diverging, with 3 setae. Antennae 1.5 times as long as body, 1st segment longer than wide, imbricated, with 7 setae; 2nd similar, with 4 setae; 3rd imbricated only on small basal part, about twice as long as width of head across eyes, with 9-13 small sensoria most in an irregular row on basal one-third, and with some blunt setae which are 0.6-0.9 times as long as middle diameter of the segment; 4th imbricated on distal half, without sensoria; relative length of segments: III-30, IV-22, V-17, VI-5+31. Clypeus with 2 pairs of anterior setae, mandibular laminae with about 5 setae, rostrum reaching hind coxae, ultimate segment nearly as long as penultimate, and as basal part of 6th antennal segment, about 1.5 times as 2nd segment of hind tarsus, with 5 or 6 pairs of secondary setae on each surface. Cornicles long, about 1.5 times as long as width of head across eyes, slightly shorter than one-third body length, about 2.3 times as long as cauda, swollen on distal half, smooth, with a few striates at apex, at apex excluding flange a little broader than middle part of hind tibia. Cauda with 9-17 setae. Genital plate with 5-7 setae along hind margin on each side. Femora with some small imbrications on distal part, with many blunt setae, longest one of which is one-third of middle diameter of femur; tibiae smooth, with setae subequal in length to middle diameter of hind tibia; tarsi with 3 setae on 1st segment in all pairs, 2nd of hind tarsus with 10 secondary setae on lower side besides an upper pair. Abdomen membranous, pale, with 7-11 dorsal setae besides marginal ones on anterior 5 segments, 4 setae between cornicles, 3 on 7th, about 8 on 8th; these setae blunt, subequal in length, as long as middle diameter of 3rd antennal segment; marginal sclerites small, faint, with 1-3 setae, and a minute papilla on anterior 5 segments. Distance between 6th and 7th abdominal spiracles nearly equal to that between 5th and 6th. Body 3.0 mm.

Alate viviparous female: Green, head dark on anterior marginal area and around ocelli, thorax not black, abdomen without pigmented sclerites, femora black except on base. Third antennal segment slightly narrowed basally, with 55 small sensoria scattered except on both ends, 4th wanting sensoria; relative length of segments: III-28, IV-22, V-19, VI-5+33. Rostrum reaching middle coxae, ultimate segment a little shorter than

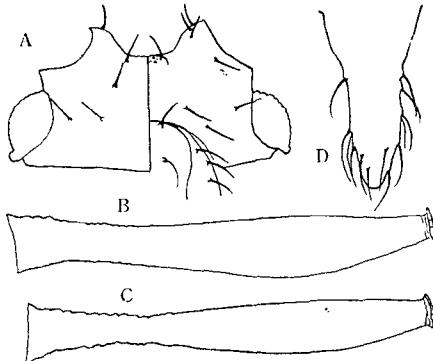


Fig. 4. *Amphorophora rubiphaga*, n. sp.

Aptera: (A) Head. (B) Cornicle.

Alata: (C) Cornicle. (D) Cauda.

basal part of 6th antennal segment, 1.5 times as long as 2nd segment of hind tarsus, with 2 pairs of secondary setae on lower side and about 5 pairs on upper side. Cornicles twice as long as cauda, at apex excluding flange much wider than middle part of hind tibia. Cauda with 11–15 setae. Anterior dorsal setae of abdomen subequal in length to middle diameter of 3rd antennal segment, 8th segment with 8 slightly longer setae. Wings faintly infuscated along veins, pterostigma pale, slightly darker along hind margin. Body 3.2–3.5 mm.

Host plant: *Rubus* sp.

Described from some specimens (cotypes) taken at Mt. Moiwa, Sapporo (31. VII. 1960, R. Takahashi).

This species differs from *A. rubi* Kaltenbach in the black cornicles, antennae and tibiae, and in the cauda with many setae; and from the description of *A. ichigo* Shinji in the much longer black cornicles, the cauda with more setae, and in the 3rd antennal segment of alata with much more sensoria.

Rhopalosiphum brachytarsus, n. sp.

Apterous viviparous female: In cleared specimen, antennae black, fore femora blackish on distal half, middle femora almost black, tibiae black at base and apical part, cornicles black, cauda paler. Body about 1.6 times as long as wide when mounted in balsam. Head smooth, with 3 pairs of long fine setae on dorsum and on venter, and a similar pair on median area of front, these setae twice as long as middle diameter of 3rd antennal segment. Antennal tubercles indistinct, without ventral setae; frontal tubercles with a rounded process which is darker, smooth and directed forward; with a long seta. Antennae about 0.82 of body length, 6-segmented; 1st segment smooth, with 7 long setae, 2nd similar, with 4 setae; 3rd imbricated on distal half, shorter than width of head across eyes, with about 15 long fine setae as long as those on head; primary sensoria rather small, processus terminalis narrowed apically, but not pointed; relative length of segments: III-27, IV-17, V-16, VI-8+38. Clypeus with 2 pairs of anterior setae, mandibular laminae with 4 setae, rostrum reaching middle coxae, ultimate segment a little longer than penultimate, as long as basal part of 6th antennal segment, about 1.5 times as 2nd segment of middle tarsus, with a pair of secondary setae. Cornicles not swollen, tapering on distal half, not expanded at base, sparsely imbricated with minute spinules, nearly as long as width of head across eyes, a little longer than 3rd antennal segment, a little shorter than one-fourth body length, 6 times as long as wide at middle, a little less than thrice as long as cauda, at apex excluding flange nearly as wide as middle part of middle tibia. Cauda nearly twice as long as wide at base, rounded at apex, scarcely constricted, with 6 setae. Genital plate pale brown, with 14 long setae along hind margin and about 10 anterior setae in an irregular row. Femora imbricated over

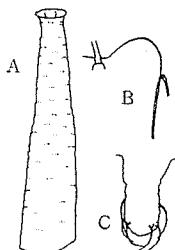


Fig. 5. *Rhopalosiphum brachytarsus*, n. sp.
Aptera.

(A) Cornicle. (B) Frontal tubercle. (C) Cauda.

distal half on lower side, with many long fine setae which are subequal in length to middle diameter of femur; fore femora about 4 times as long as wide; tibiae smooth, with many long fine setae besides a few shorter stiff ones on distal part, longer ones 2-2.3 times as long as middle diameter of middle tibia; tarsi short, with 3 setae subequal in length on 1st segment in fore and middle legs; 2nd segment of middle tarsus about thrice as long as wide at middle, shorter than basal part of 6th antennal segment, 1.4 or 1.5 times as long as apical diameter of middle tibia, with one or 2 secondary setae on lower side. Abdomen faintly reticulated, without sclerites, with many long fine setae in irregular rows, these setae 12 on 6th segment between cornicles, 10 on 8th, twice as long as middle diameter of 3rd antennal segment on basal segment, but 2.6 times as long as that diameter on posterior segments; 8th pale dusky; marginal tubercles present on 1st-4th, 6th, and 7th segments, at level of spiracles on 7th, at base a little longer in diameter than, or as long as, spiracular apertures. Basal 2 abdominal spiracles much apart, spiracular plates brown, not circular. Mesosternal furca without distinct basal stem. Body 2.5 mm.

Host plant: A plant of Cyperaceae.

Described from an aptera (holotype) collected at Jozankei, Sapporo (19. VI. 1960, M. Inouye), with hind legs broken.

This species is very distinctive in the long fine setae on the body, antennae and legs, the short tarsi, and in the long cylindrical cornicles. Somewhat resembles *R. pilipes* Ossiannilsson and *R. wahlgreni* Ossiannilsson, but differs from them in the longer setae on the body and antennae, as well as in other characters.